BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Application of New Cingular Wireless PCS, LLC and Qualcomm Incorporated for Consent to Assign a Lower 700 MHz B Block License	)	WT Docket No 16-75

RESPONSE OF AT&T TO GENERAL INFORMATION REQUEST DATED APRIL 18, 2016

May 2, 2016

Response of AT&T to General Information Request Dated April 18, 2016

May 2, 2016

Introduction

New Cingular Wireless PCS, LLC ("New Cingular") an indirect wholly-owned subsidiary of AT&T Inc. (collectively, "AT&T") hereby provides this response (the "Response") to the letter dated April 18, 2016 from Jon Wilkins, Chief of the Wireless Telecommunications Bureau of the Federal Communications Commission ("FCC" or "Commission"), and the General Information Request for AT&T attached thereto (collectively, the "Request"). In four requests, (individually referred to herein as "Request No. [#]"), the FCC asks AT&T (sometimes referred to in the request as the "Company," as defined therein) to provide by May 2, 2016 documents, data, and other information to compete the Commission's review of the application of New Cingular and Qualcomm Incorporated ("Qualcomm") for consent to the assignment of a Lower 700 MHz B Block license from Qualcomm to AT&T.

Consistent with AT&T's discussions with Commission staff on similar requests, AT&T's responses are based on a review of available documents that are likely to contain responsive information and inquiry of those individuals and available sources that are likely to have relevant information. Where the Request seeks documents, responsive documents are produced.

The Request calls for AT&T to submit certain information and documents that are sensitive from a commercial, competitive, and financial perspective, and that AT&T would not reveal in the ordinary course of business to the public or its competitors. AT&T is submitting information and documents on a Confidential and/or Highly Confidential basis pursuant to the Protective Order for this proceeding that was issued on April 18, 2016. The inadvertent

inclusion of any material that is subject to an assertion of the attorney-client, attorney work-product, or other applicable privilege is not intended as a waiver of such privilege.

In the public version of the Response, AT&T has redacted Highly Confidential Information and marked the redactions with "**[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]** . . . **[END AT&T HIGHLY CONFIDENTIAL INFORMATION]**". Additionally, AT&T has redacted information obtained from the Numbering Resource Utilization and Forecast ("NRUF") and Local Number Portability ("LNP") placed in the record by the Commission pursuant to its Protective Order of April 18, 2016. AT&T has marked these redactions with "**[BEGIN NRUF/LNP INFORMATION] . . . [END NRUF/LNP INFORMATION]**."

The redacted Response is marked "**REDACTED – FOR PUBLIC INSPECTION**" and is being filed electronically in the Commission's Electronic Comment Filing System ("ECFS"). The Highly Confidential, unredacted Response is marked, "**HIGHLY CONFIDENTIAL INFORMATION – SUBJECT TO PROTECTIVE ORDER AND NRUF/LNP PROTECTIVE ORDER IN WT DOCKET NO. 16-75 BEFORE THE FEDERAL COMMUNICATIONS COMMISSION – ADDITIONAL COPYING RESTRICTED**" and is being delivered to the Secretary. Additional copies of the unredacted Response are being delivered as instructed in the Request.

In accordance with the Request and the Protective Order, unredacted copies of Highly Confidential documents are marked "**HIGHLY CONFIDENTIAL INFORMATION – SUBJECT TO PROTECTIVE ORDER AND NRUF/LNP PROTECTIVE ORDER IN WT DOCKET NO. 16-75 BEFORE THE FEDERAL COMMUNICATIONS COMMISSION –**

ADDITIONAL COPYING RESTRICTED." Pursuant to the Request, the Highly Confidential documents are being delivered to Scott Patrick of the Wireless Telecommunications Bureau.

Pursuant to discussions with the Commission staff, AT&T is submitting its Response with the qualification that AT&T has not verified that it has produced "all other documents referred to in the document or attachments."

RESPONSES

1. REQUEST:

On page 2 of the Public Interest Statement, the Applicants maintain that the additional spectrum "will be used to deploy and/or expand AT&T's 4G LTE network, and will increase network capacity to the benefit of all AT&T subscribers." In addition, on pages 2-3, the Applicants contend that the acquisition of this spectrum "will give AT&T 24 contiguous megahertz of paired 700 MHz spectrum, enough to support a 10×10 MHz LTE deployment," and further assert that there are benefits of a 10×10 MHz LTE configuration, such as greater efficiencies, increased network capacity, and better throughput. For CMA 550 (New Jersey 1 – Hunterdon) provide:

a. A detailed discussion of the Company's plans to provide high-quality, high-speed wireless broadband services prior to the Proposed Transaction, including a detailed description of the Company's current and planned deployment of LTE, which identifies the spectrum bands and the total amount of spectrum used for LTE deployment.

AT&T has worked tirelessly to deploy 4G LTE wireless broadband services throughout its nationwide footprint. AT&T's LTE network covers 355 million people in North America, and data traffic on AT&T's network increased more than 150,000% from January 2007 through December 2015.[1] Today, AT&T's LTE deployment includes approximately **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION] [END AT&T HIGHLY CONFIDENTIAL INFORMATION]** people in the New Jersey 1 - Hunterdon CMA. AT&T uses a variety of spectrum bands – Lower 700 MHz, 850 MHz cellular, Broadband PCS, and/or AWS-1 – to provide LTE services to its customers, with specific LTE deployments varying by market.[2] However, AT&T's LTE deployment strategy centers around the Lower 700 MHz band, and AT&T has made deployment of LTE in 700 MHz spectrum a key priority. Where AT&T

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[1] AT&T, About Our Network, *at* http://about.att.com/news/wireless-network.html.

[2] As more customers upgrade to LTE service, and compatible handsets and equipment become available, AT&T expects to deploy LTE service using additional spectrum bands, including WCS and the Lower 700 MHz D and E Blocks.

holds Lower 700 MHz B or C Block spectrum, AT&T will launch LTE service initially using that spectrum. AT&T typically will launch LTE in a 5 x 5 MHz configuration where only a single 12 MHz block of Lower 700 MHz B or C Block spectrum is available, and will launch LTE in a 10 x 10 MHz configuration in areas where both the Lower 700 MHz B and C Blocks are available.

In the New Jersey 1 - Hunterdon CMA, AT&T currently operates an LTE network

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As explained in Response Nos. 1(b)-(c), AT&T is using and will continue to use the 700 MHz spectrum to be acquired in this transaction to improve the quality of service for subscribers in this market and to respond to subscribers' considerable demand for LTE services.

b. A detailed description of how the Company would use the spectrum that it would acquire under the Proposed Transaction to provide a 10×10 megahertz LTE network, on a standalone basis and/or in conjunction with any other of the Company's spectrum holdings.

In the New Jersey 1 – Hunterdon CMA, AT&T currently has licensed spectrum sufficient to deploy a 5 x 5 MHz LTE carrier in 700 MHz spectrum. Through its spectrum manager lease of the Qualcomm license that recently took effect, AT&T was able to provide a 10 x 10 MHz LTE deployment on 700 MHz in this market prior to the consummation of this transaction. AT&T has deployed this spectrum pursuant to its spectrum manager lease with Qualcomm.

Acquisition of this license from Qualcomm will enable AT&T to maintain this 10 x 10 MHz LTE deployment in the Lower 700 MHz spectrum in this CMA on a permanent basis. As explained further below, the benefits of such a deployment are considerable, and represent a major improvement in speed and efficiency over a 5 x 5 MHz LTE carrier.

c. A detailed description of how deployment of a 10×10 megahertz LTE network would improve efficiency, throughput, and network capacity, and the Company's timeline for such a deployment.

There are numerous spectral efficiency benefits associated with the deployment of a 10 x 10 MHz LTE network, as opposed to a 5 x 5 MHz LTE network. First, the 10 x 10 MHz deployment's wider bandwidth provides greater trunking efficiencies. Additionally, a 10 x 10 MHz contiguous block also benefits from signaling efficiency as many of the control overhead/messages (such as Physical Broadcast Control Channel, Shared Channel, *etc*) need to be transmitted only once instead of twice, as would be the case for two non-contiguous 5 x 5 MHz blocks. These efficiency improvements result in higher system capacity and spectral efficiency and a better user throughput experience than would be possible over two separate 5 x 5 MHz blocks.

The wider bandwidth of a contiguous 10 x 10 MHz block provides trunking efficiency gains due to the pooling of the resources across a single scheduler, thus enabling AT&T to carry more traffic (more calls and more megabytes of data traffic per busy hour) than AT&T would be able to carry over two separate 5 x 5 MHz blocks. In other words, the increased efficiency results from the fact that potential users can be scheduled over a larger number of resources (sub-channels) in the 10 x 10 MHz deployment than they can if they were split between two separate

5 x 5 blocks.[3] In addition, when the channel bandwidth is significantly greater than the coherence bandwidth[4] (the coherence bandwidth is generally somewhat less than 5 MHz in these systems), it ensures that the entire signal does not undergo a deep fade, and by using proper frequency-selective resource allocation, this should result in increased efficiency.

The spectral efficiency benefits of a 10 x 10 MHz LTE deployment are a matter of Commission record. In approving another transaction in which AT&T acquired Lower 700 MHz B Block spectrum to complement its C Block holdings, the Commission agreed that "the proposed transaction has the potential to enable AT&T to achieve greater spectral efficiency and greater throughput in the license areas at issue, which would enable AT&T to expand its LTE deployment using contiguous spectrum. Indeed, AT&T's description of its plans for this market generally suggests that AT&T would take advantage of these potential benefits to provide better service to customers."[5]

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[3] A useful analogy is to the ticket agent line at an airport. One line that is served by four ticket agents will provide more prompt and efficient service for customers than two separate lines, where each line is served by two ticket agents and customers cannot change lines. When one line is served by four ticket agents, whenever an agent is available, the next customer in line will be served. With two separate lines, if one line is empty and the other is full, the ticket agents serving the empty line are not utilized because customers cannot change lines. Combining the two lines results in better service to the customers as a whole, uses the ticket agents more efficiently, and provides the capacity to serve more customers in a given amount of time.

[4] "Coherence bandwidth is a statistical measure of the range of frequencies over which the channel can be considered 'flat' (*i.e.*, a channel which passes all spectral components with approximately equal gain and linear phase). In other words, coherence bandwidth is the range of frequencies over which two frequency components have a strong potential for amplitude correlation." Theodore S. Rappaport, Wireless Communications: Principles and Practice (2007).

[5] *Applications of AT&T Inc., Cellco Partnership d/b/a Verizon Wireless, Grain Spectrum, LLC, and Grain Spectrum II, LLC*, Memorandum Opinion and Order, 28 FCC Rcd 12878, ¶ 59 (2013).

AT&T's acquisition of the Qualcomm license will also improve the capacity of AT&T's LTE network. The relative gain in capacity from a 5 x 5 MHz to a 10 x 10 MHz deployment is nonlinear, meaning that the capacity of a 10 x 10 MHz block is greater than the total capacity of two separate 5 x 5 MHz blocks. For example, AT&T estimates that the average downlink capacity of a 10 x 10 MHz block, optimized for average user performance, is more than double — 2.2 times — the capacity of a 5 x 5 MHz block. Thus, the 10 MHz block would have approximately 10 percent more capacity than two 5 MHz blocks.[6] The wider bandwidth also results in noticeably better performance for users than a deployment using two 5 x 5 MHz blocks. For example, under multi-user bursty traffic conditions and assuming a 50 percent load (where load is defined as the resource block utilization level), a 10 x 10 MHz deployment is expected to support a median user throughput of about **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION] [END AT&T HIGHLY CONFIDENTIAL INFORMATION]** compared to **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION] [END AT&T HIGHLY CONFIDENTIAL INFORMATION]** for a 5 x 5 MHz deployment, for a relative gain of about **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION] [END AT&T HIGHLY CONFIDENTIAL INFORMATION]**.[7] Finally, it is well known that the peak data rate for a 10 x 10 MHz block is twice that of a 5 x 5 MHz block.[8]

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[6] *See* ATT-QUAL000049-ATT-QUAL000050 (setting forth assumptions underlying capacity gain estimates).

[7] *See* ATT-QUAL000007 (setting forth assumptions underlying calculations).

[8] *See, e.g.*, Eiko Seidel, Junaid Afzal, Günther Liebl, Nomor Research GmbH, *White Paper — Dual Cell HSDPA and its Future Evolution* at 2 (January 2009) (stating that doubling bandwidth will double data rates), *available at* http://www.nomor-

AT&T's current LTE population coverage is **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION] [END AT&T HIGHLY CONFIDENTIAL INFORMATION]** in the geographic area where it will acquire spectrum from Qualcomm.[9] As indicated above, AT&T is currently leasing the Qualcomm license during the pendency of this transaction and has already deployed a 10 x 10 MHz LTE carrier in this market pursuant to this lease.

Provide all documents relied on in preparing the responses to 1(a)-1(c).

Relevant documents are attached at Bates Ranges ATT-QUAL000001 through ATT-QUAL000071.

2. REQUEST:

Provide polygons in an ESRI shapefile format representing geographic coverage for AT&T in New Jersey 1 – Hunterdon, including each mobile broadband network technology (e.g., CDMA, EV-DO, EV-DO Rev. A, GSM, EDGE, UMTS, HSPA, HSPA+, LTE) deployed in each frequency band (e.g., Lower 700 MHz, Cellular, SMR, AWS-1, PCS, BRS/EBS). Provide all assumptions, methodology (e.g., propagation, projection, field measurements), calculations (including link budgets), tools (e.g., predictive and field measurements) and data (e.g., terrain, morphology, buildings) used in the production of the polygons, and identify the propagation tool used, the propagation model used within that tool, including but not limited to, the coefficients used in the model and any additions, corrections or modifications made to the model.

RESPONSE:

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research.com/uploads/1h/pA/1hpAccByjinAOWBDzTNt4w/WhitePaper_DC-HSDPA_2009-01.pdf.

[9] **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]** **[END AT&T HIGHLY CONFIDENTIAL INFORMATION]** The current coverage data may include "spillover" coverage from adjacent areas, potentially resulting in the Subject CMA having population coverage although no LTE sites have been deployed within the CMA boundaries.

Exhibit 2 provides polygons in ESRI shapefile format representing geographic coverage for AT&T.

The polygons were generated by Forsk's Atoll propagation tool, which AT&T uses in the ordinary course of its business to create signal level files, which are collected and compiled to create coverage maps. Inputs to the propagation tool include cell site location, antenna height, antenna down tilt, antenna azimuth (direction in which the antenna points), antenna pattern (shape of antenna signal), signal power, topography/terrain, and clutter (physical land use and vegetation obstructions to the propagation of radio waves other than topography).

AT&T customizes the Atoll propagation tool primarily through the use of area-specific propagation models, which leverage up-to-date geographic terrain and clutter information provided by **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

[END AT&T HIGHLY CONFIDENTIAL INFORMATION], a geodata provider.

AT&T contracts with a third-party vendor, **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]** **[END AT&T HIGHLY CONFIDENTIAL INFORMATION]**, to tune and deliver pre-calibrated propagation models to AT&T. The calibrated propagation models are based on **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

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3. REQUEST:

The Commission stated in the Mobile Spectrum Holdings Report and Order *that the two leading nationwide service providers hold most of the low-band spectrum available today,*[10] *and found that if they were to acquire all, or substantially all, of the remaining low-band spectrum, they would benefit, independently of any deployment, to the extent that rival service providers are denied its use.*[11] *The* Mobile Spectrum Holdings Report and Order *requires, where an entity acquiring below-1-GHz spectrum already holds approximately one-third or more of the below-1-GHz spectrum in a particular market, that the demonstration of the public interest benefits of the proposed transaction will need to clearly outweigh the potential public interest harms, irrespective of other factors.*[12] *In New Jersey 1 – Hunterdon, the Company already holds 49 megahertz of below-1-GHz spectrum and, as a result of the Proposed Transaction, would increase its holdings to 61 megahertz of such spectrum. In order to make such a demonstration, provide a detailed explanation, consistent with the Commission's conclusions about the importance of low-band spectrum,*[13] *for:*

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[10] *Policies Regarding Mobile Spectrum Holdings; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, WT Docket No. 12-269, GN Docket No. 12-268, Report and Order, 29 FCC 6133, 6156-57, 6162, 6164, paras. 46, 58, 60 (2014) (*Mobile Spectrum Holdings Report and Order*), *recon. denied*, Order on Reconsideration, 30 FCC Rcd 8635 (2015).

[11] *Id.* at 6164, para. 60.

[12] *Id.* at 6240, para. 287.

[13] *Id.* at 6164-65, paras. 60-61.

a. Why this additional concentration of spectrum clearly outweighs the public interest harms associated with such concentration of below-1-GHz spectrum, irrespective of other factors.

RESPONSE:

AT&T's proposed acquisition of the Qualcomm license will create substantial, documented public interest benefits and will not lead to competitive harms. Thus, the Commission's standard for "paragraph 287" "enhanced factor" review – that "the public interest benefits of the proposed transaction will need to clearly outweigh the potential public interest harms, irrespective of other factors" is clearly met. *First*, the public interest benefits associated with this acquisition of spectrum are significant and have been repeatedly endorsed by the Commission and others. *Second,* AT&T's competitors in this market have sufficient spectrum assets – including low-band spectrum – to compete with AT&T. *Third,* AT&T's competitors have been able to deploy extensive LTE networks in this county, and will continue to have strong LTE networks post-transaction.[14]

The Public Interest Benefits of This Transaction are Clear, Significant, and Well-Documented. As a preliminary matter, as has been explained extensively in this proceeding and others, there are obvious efficiencies for AT&T in having a 10 x 10 MHz LTE deployment in 700 MHz spectrum. The Department of Justice ("DOJ") has recognized that "there may be substantial efficiencies associated with ownership of relatively large blocks of spectrum" and that "there may be capital cost efficiencies associated with deploying larger blocks of

[14] The remaining criteria considered by the Commission in its "paragraph 287" enhanced factor analysis relate to potential competitive foreclosure, and per the Commission's request AT&T will address these matters in its response to Request No. 3(c).

spectrum."[15] As AT&T has explained, approval of this transaction would enable AT&T to expand its 700 MHz LTE deployment from a 5 x 5 MHz configuration to a 10 x 10 MHz configuration, enabling AT&T to take advantage of the significant technical advantages associated with such a deployment. Indeed, DOJ further notes that "[e]ven if a carrier has not yet identified a use for specific spectrum to accommodate its customers' data consumption, deploying the spectrum can provide a significant increase in user throughput at relatively low cost."[16] As a result, DOJ cautions that the FCC "should not needlessly prevent carriers from assembling spectrum portfolios that can take advantage of these efficiencies."[17] The Commission has echoed this finding and stated that such an LTE deployment enhancement carries significant public interest benefits.[18] The Commission has found such acquisitions to be particularly beneficial where, as here, the acquired 700 MHz block previously had been lying fallow.[19]

AT&T's Competitors Have Sufficient Spectrum to Compete With AT&T. AT&T's competitors in this market have sufficient spectrum assets – including low-band spectrum – to compete effectively with AT&T. In conducting "paragraph 287" "enhanced factor" review, the Commission considers the low- and high-band spectrum holdings of the other nationwide

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[15] *Ex Parte* Submission of the United States Department of Justice, WT Docket No. 12-269, at 15 (Apr. 11, 2013) ("DOJ April 11 *Ex Parte*").

[16] *Id.*

[17] *Id.*

[18] *Applications of AT&T Inc., E.N.M.R. Telephone Cooperative, Plateau Telecommunications, Inc., New Mexico RSA 4 East Limited Partnership, and Texas RSA 3 Limited Partnership for Consent to Assign Licenses and Authorizations*, Memorandum Opinion and Order, FCC 15-53, ¶¶ 52-53 (2015) ("*AT&T/Plateau Order*").

[19] *Id.* at ¶ 53.

carriers, and whether they have sufficient low- and high-band spectrum to deploy LTE networks.[20] As was the case in the Club 42 transaction, "the three other nationwide service providers . . . each have access in this particular market to low-band spectrum that would allow at least a 5 x 5 megahertz LTE deployment on below-1-GHz spectrum."[21] Specifically, as was the case in *Club 42,* Verizon Wireless holds 47 megahertz (25 megahertz of cellular spectrum and 22 megahertz of Upper 700 MHz C Block spectrum), Sprint holds 14 megahertz of SMR spectrum, and T-Mobile holds 12 megahertz of Lower 700 MHz A Block spectrum. In addition, other carriers in this market already have access to spectrum suitable for 10 x 10 MHz (or 20 x 20 MHz) LTE deployments of their own:

- **DISH:** DISH has access to 20 MHz x 20 MHz of contiguous AWS-4 spectrum, as well as a 10 MHz AWS-H Block and, now, controls 25 MHz of AWS-3 spectrum. DISH has no legacy subscribers that would limit deployment in those bands.

- **Sprint:** Sprint has 14 MHz of SMR spectrum, 30 MHz of contiguous PCS spectrum, the 10 MHz G Block, and appears to have the entire BRS/EBS band—196 MHz of contiguous spectrum. Sprint has stated its intention to use its BRS/EBS holdings to deploy LTE, and have touted their large spectrum holdings as a key competitive advantage.[22]

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[20] *Application of AT&T Mobility Spectrum LLC and Club 42CM Limited Partnership for Consent to Assign Licenses,* Memorandum Opinion and Order, 30 FCC Rcd 13055, ¶ 38 (Nov. 12, 2015) ("*AT&T/Club 42 Order*").

[21] *Id.*

[22] Chuong Nguyen, "Sprint Chooses Radically Different Approach for LTE Network, And It May Pay Off," GottaBeMobile (Apr. 18, 2013), *available at* http://www.gottabemobile.com/2013/04/18/twitter-music-app-for-iphone-and-web-browsers-launches/ ("In essence, this will give Sprint roughly about a 20 X 20 channel for LTE when maximized, which is double the 10 X 10 channel that Verizon has for its LTE deployment and far more than the 5 X 5 channel that AT&T is limited to in select markets. . . .[Sprint Director of Solutions Engineering Kim Wade] says that essentially, this large chunk of bandwidth from Sprint and as part of its agreement with Clearwire will allow Sprint to deliver speeds up to 100 Mbps in the future."). Further, AT&T notes that Sprint also has access to 14 megahertz of ESMR spectrum in this market.

- **T-Mobile:** In addition to the 12 MHz Lower 700 MHz A Block, T-Mobile has access to 20 MHz of Broadband PCS spectrum and 50 MHz of contiguous AWS-1 spectrum (C, D, E, and F Blocks). While some of that spectrum is likely being used to support legacy GSM and UMTS subscribers, it has large swaths of contiguous bandwidth for LTE.[23]

- **Verizon:** In addition to its 25 MHz cellular authorization, which is likely being utilized for legacy services, Verizon has a 22 MHz Upper 700 MHz license and 40 MHz each of contiguous Broadband PCS (C and F Blocks) AWS-1 (A and B Blocks) spectrum. In particular, Verizon has used its AWS-1 spectrum to significantly expand its LTE network.[24]

Thus, it is clear that "the spectrum holdings of the other three nationwide service providers would likely allow them to efficiently respond to any anticompetitive behavior on the part of AT&T."[25]

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[23] News Release, T-Mobile, "Customer Data Proves T-Mobile Network Now Fastest 4G LTE in the U.S." (Jan. 8, 2014), *available at* http://newsroom.t-mobile.com/news/customer-data-proves-t-mobile-network-now-fastest-4g-lte-in-the-us.htm ("The company also revealed the continued rapid expansion of its nationwide LTE network to reach 209 million people, with 43 of the top 50 markets now served by 10+10 MHz LTE. . . . With the launch of T-Mobile Wideband LTE in North Dallas last November, T-Mobile beat another company milestone, delivering 20+20 MHz LTE ahead of 2014, which is capable of peak download speeds of 150 Mbps. T-Mobile has measured download speeds of 147 Mbps and uplink speeds of up to 40 Mbps in North Dallas, meaning customers could download a 90-minute HD movie in under three minutes or a whole music album in 7 seconds."). Further, AT&T notes that T-Mobile also holds the Lower 700 MHz A Block license in this market.

[24] Kevin Fitchard, "Verizon Quietly Unleashes its LTE Monster, Tripling 4G Capacity in Major Cities," Gigaom (Dec. 5, 2013), *available at* https://gigaom.com/2013/12/05/verizon-quietly-unleashes-its-lte-monster-tripling-4g-capacity-in-major-cities/ ("Verizon is tapping the Advanced Wireless Services airwaves it acquired from the cable operators back in 2012, and these are no paltry frequencies. In every major city east of the Mississippi and in several western markets, Palmer said, Verizon has fielded LTE systems utilizing a full 40 MHz of spectrum, twice as big as the 20 MHz network it's spent the last three years rolling out nationwide. In some cities it couldn't piece together a 40 MHz block, but it has been able to get close: In San Francisco and Los Angeles, for instance, the new networks are hosted on 30 MHz of AWS spectrum.")

[25] *AT&T/Club 42 Order* at ¶ 38.

The Other Nationwide Carriers Have Deployed Substantial LTE Networks in this Market. In the Club 42 proceeding, the Commission also cited the fact that "each of the three other nationwide service providers currently cover at least 70 percent of the population of the market with LTE."[26] While AT&T does not possess granular data regarding the other nationwide providers' LTE network coverage in Hunterdon County, the maps below[27] make clear that Sprint, T-Mobile, and Verizon all have near-ubiquitous LTE coverage in this county.

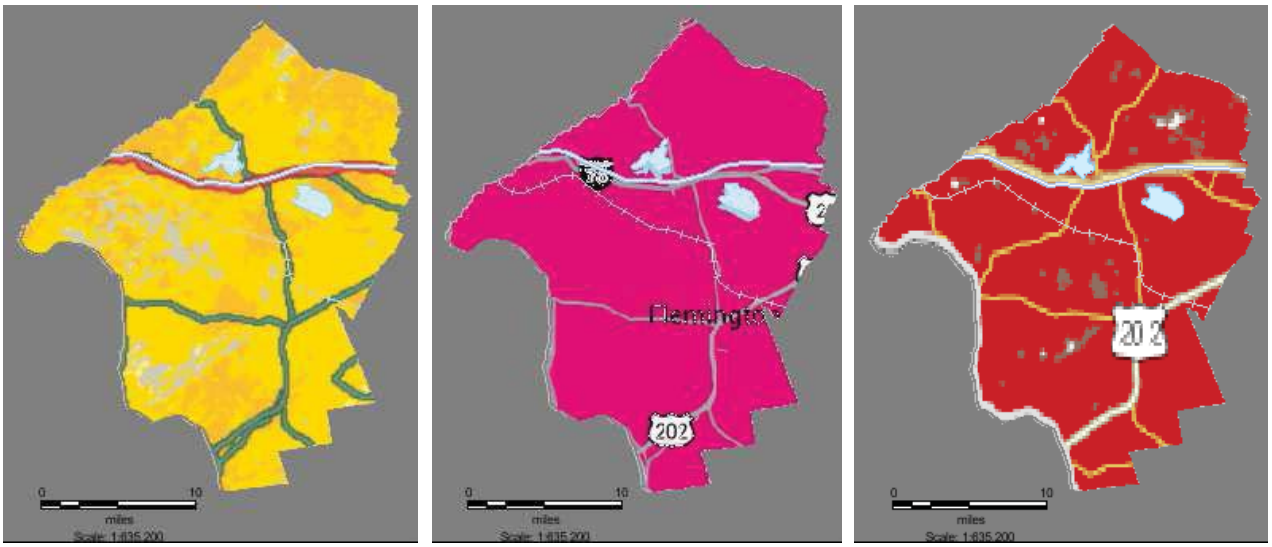

Figure 1: LTE Coverage of Sprint, T-Mobile, and Verizon in Hunterdon County

b. How the Company is maximizing its use of its current spectrum holdings and how the acquisition of additional below-1-GHz spectrum is necessary to maintain, enhance, or expand mobile telephony/broadband services provided to consumers.

RESPONSE:

In this market, and as explained above, AT&T holds 25 megahertz of cellular spectrum,

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26 *Id.*

27 Maps derived from carriers' respective online coverage maps.

INFORMATION] AT&T also holds 30 megahertz of Broadband PCS spectrum, **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

[END AT&T HIGHLY CONFIDENTIAL INFORMATION] As for paired Lower 700 MHz spectrum, AT&T currently holds a license for the C Block, and has a lease in place with Qualcomm that provides access to the B Block during the pendency of this transaction. AT&T is operating a 10 x 10 MHz LTE carrier using this spectrum. AT&T holds 12 megahertz of unpaired 700 MHz spectrum in this market, and **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

[END AT&T HIGHLY CONFIDENTIAL INFORMATION] However, AT&T notes that limits on the use of unpaired 700 MHz spectrum render it incomparable with other spectrum below 1 GHz. AT&T also holds 20 MHz of WCS spectrum in this market, and **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

[END AT&T HIGHLY CONFIDENTIAL INFORMATION] AT&T does not hold any AWS-1 spectrum in this market – all AWS-1 spectrum is licensed to T-Mobile and Verizon.

The acquisition of the Qualcomm license in this market is necessary to maintain, enhance, and/or expand AT&T's mobile services for several reasons. As an initial matter, AT&T has limited options for expanding its LTE deployment into additional spectrum. As explained above, **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

[END AT&T HIGHLY CONFIDENTIAL INFORMATION] AT&T is effectively and efficiently using its cellular and PCS spectrum holdings in this market, and it has no access to AWS-1 spectrum. Acquisition

of the Qualcomm license will also make AT&T's spectrum holdings and LTE deployment more consistent with those in surrounding markets, where AT&T already holds the Lower 700 MHz B and C Blocks – this allows AT&T improved coverage and increased efficiency in market border areas because AT&T can manage the interference between markets more effectively.[28]

Since AT&T expanded its Lower 700 MHz LTE carrier in this market from 5 x 5 MHz to 10 x 10 MHz, it has experienced significant increases in network performance. Specifically, **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

[END AT&T HIGHLY CONFIDENTIAL INFORMATION] AT&T has also observed that since deploying the 10 x 10 MHz carrier, **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

[28] *See* ATT-QUAL000071.

[END AT&T HIGHLY CONFIDENTIAL INFORMATION]

Deployment of 10 x 10 MHz (or 20 x 20 MHz) LTE carriers – which this transaction will make possible for AT&T in the 700 MHz band – is a competitive necessity in today's mobile market. Indeed, as explained above, numerous other carriers in the market have spectrum suitable for 10 x 10 MHz or 20 x 20 MHz LTE deployments. These competitors of AT&T have stressed that the ability to offer a 10 x 10 MHz or 20 x 20 MHz LTE carrier has become a competitive imperative in today's market, and have expressed a strong desire to achieve contiguity of spectrum capable of supporting such operation.[29] This is because network speed and performance are key factors on which wireless companies compete with each other. And there are key performance gains associated with wider-bandwidth LTE deployments, as AT&T has noted above.

c. Why the proposed acquisition of this specific Lower 700 MHz B Block below-1-GHz spectrum would not raise rivals' costs or foreclose competition such that the ability of rival service providers to offer a competitive response to any potential

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[29] *See, e.g.*, Deutsche Telekom AG Application, File No. 0005446627, Exhibit 1, Description of Transaction and Public Interest Statement at Declaration of Mark McDiarmid ¶¶ 7-9 (citing the benefits of 10x10 MHz and 20x20 LTE deployments and stating that "T-Mobile USA's primary competitors proclaim their data speed advantages as well as the quality and reach of their network services in all of their marketing material. As such, T-Mobile USA must make every effort to deploy a deep and broad LTE network that provides data speeds and capabilities that are competitive with other wireless providers."); Application of Cellco Partnership d/b/a Verizon Wireless and T-Mobile License LLC for Consent to Assign Licenses, File No. 0005272585, Exhibit 1, Description of Transaction and Public Interest Statement at 4-5 (stating that the transaction will allow both T-Mobile and Verizon Wireless to obtain blocks of newly contiguous spectrum, and stating that "[o]perating on contiguous blocks of spectrum and aligning spectrum blocks in adjacent markets allows wireless providers to use frequencies for data transmissions otherwise dedicated to guard bands, provides efficiency benefits and access to greater capacity, and allows the Applicants to take better advantage of improved wideband technologies. Thus, the intra-market spectrum swaps will enhance competition and improve both Applicants' quality of services in the wireless marketplace.").

> *anticompetitive behavior on the part of AT&T would be eliminated or significantly lessened.*

RESPONSE:

AT&T's acquisition of the Qualcomm license will not raise rivals' costs or foreclose competition, and will not preclude rival service providers from expanding or entering into this market. *First*, acquisition of the Qualcomm license does not enable AT&T to raise prices or prevent competitors from lowering prices in this market. *Second*, the acquisition of this spectrum does not foreclose competitors' abilities to capture market share. *Third*, and finally, the circumstances of the sale of this spectrum make clear that AT&T does not seek to acquire this license for foreclosure purposes.

Acquisition of the Qualcomm License Does Not Enable AT&T to Raise Prices or Prevent Competitors From Lowering Prices. One argument advanced by the Department of Justice and endorsed by the Commission in the *Mobile Spectrum Holdings Order*, is the notion that "the value of keeping spectrum out of competitors' hands could be very high. For example, if competitors acquire spectrum to provide broader service offerings, expand coverage, or increase capacity, prices for existing customers would fall, threatening the margins being earned."[30] As noted above, AT&T's acquisition of the Qualcomm license in this market could not prevent its competitors from expanding coverage or increasing capacity. Nor would the acquisition of the Qualcomm license enable AT&T to raise prices or prevent AT&T's competitors from lowering prices.

First, all four competitors in this CMA price and advertise their services on a national level, not locally. As the Commission itself has noted, "certain elements of the provision of

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[30] DOJ April 11 *Ex Parte* at 11. *See also Mobile Spectrum Holdings Order* at ¶ 43.

mobile wireless services are national in scope," including "key variables such as pricing, development of equipment, and service plan offerings."[31] This is certainly true for the national carriers, and as a result, prices are highly unlikely to be affected by the assignment of a single license covering a single county. Indeed, when the Commission recently granted AT&T's application to acquire spectrum from Plateau Wireless, it noted that "two key competitive variables – monthly pricing and service plan offerings – do not vary for most providers across most geographic markets," and added that "AT&T, Verizon Wireless, Sprint, and T-Mobile, as well as some other providers, set the same rates for a given plan everywhere and advertise nationally."[32] Reduced to its essence, the "foreclosure" argument is that AT&T reaps a benefit from acquiring Qualcomm's spectrum because it will be able to levy supra-competitive prices in Hunterdon County by denying competitors the capacity to expand – a theory that is directly contradicted by the existing precedent on the way carriers set prices.

Second, even if pricing were not set at a national level, all of the other competitors in this CMA have the ability to effectively constrain any attempt by AT&T to raise prices or reduce output. As noted above, all of the competitors in this CMA already have access to sufficient low and high band spectrum to expand coverage and capacity. Moreover, national carriers continue to compete vigorously on price.[33] Accordingly, there is no basis to suggest, even if pricing were local, that any attempt to unilaterally raise prices in Hunterdon County would not be met with

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31 *Mobile Spectrum Holdings Order* at ¶ 263.

32 *AT&T/Plateau Order* at ¶ 19, n. 70 (2015).

33 *See, e.g.,* "Verizon Tops Subscriber Estimates Amid Industry Price Battle: Giveaways, Free Streaming, Ad Wars Characterize Telco," *Advertising Age* (April 21, 2016), *at* http://adage.com/article/digital/verizon-tops-subscriber-estimates-amid-industry-price-battle/303671/.

effective competitive responses from all of the other national carriers. In short, there is no basis to infer that the acquisition of a single license in a single county would affect competition "such that the ability of rival service providers to offer a competitive response to any potential anticompetitive behavior" would be "eliminated or significantly lessened."

Acquisition of the Qualcomm License Does Not Foreclose Competitors From Capturing Market Share. This transaction does not have a preclusive effect because it is a spectrum-only transaction that does not impact market shares. Indeed, AT&T's competitors all have sufficient spectrum to compete and to increase their market share, as evidenced by the data provided above. In this market, **[BEGIN NRUF/LNP CONFIDENTIAL INFORMATION]**

[END NRUF/LNP CONFIDENTIAL INFORMATION][34] According to the NRUF data, **[BEGIN NRUF/LNP CONFIDENTIAL INFORMATION]**

[END NRUF/LNP CONFIDENTIAL INFORMATION][35] And while **[BEGIN NRUF/LNP CONFIDENTIAL INFORMATION]**

[END NRUF/LNP CONFIDENTIAL INFORMATION] In sum, AT&T's acquisition of the Qualcomm license should not have any negative impact on competition in this market.

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34 Derived from NRUF/LNP data supplied in this proceeding.

35 *Id.*

AT&T Was Not Motivated by Foreclosure in Agreeing to Purchase the Qualcomm License. AT&T's acquisition of this spectrum cannot possibly be considered preclusive in nature, considering the factual circumstances surrounding the sale.[36] The Commission has defined foreclosure as occurring "when competitors have an incentive and ability to acquire an input not only to put it to their own use, but also to withhold it from their rivals."[37] This is not AT&T's motivation for acquiring additional paired Lower 700 MHz spectrum, and certainly was not in the instant case. AT&T **[BEGIN AT&T HIGHLY CONFIDENTIAL INFORMATION]**

[END AT&T HIGHLY CONFIDENTIAL INFORMATION][38] In other words, AT&T plainly is not motivated by a foreclosure strategy, and there is no basis to assume it absent evidence to the contrary.

Provide all documents relied on in preparing the response.

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36 *AT&T/Club 42 Order* at ¶ 38.

37 *Mobile Spectrum Holdings Order* ¶ 41.

38 *See* ATT-QUAL000071.

Relevant documents are attached at Bates Ranges ATT-QUAL000056 through ATT-QUAL000071.

4. REQUEST:

On page 4 of the Public Interest Statement, the Applicants state that the proposed transaction "will enhance competition by enabling AT&T to be a more effective competitor . . . ," and will "preserv[e] meaningful competition in the affected area." Provide a detailed discussion of how the Proposed Transaction promotes and preserves meaningful competition and how it would allow the Company to become a more effective competitor. Provide all documents relied on in preparing the response.

RESPONSE:

The proposed transaction will preserve competition and allow rival service providers to provide an effective competitive constraint for several reasons. First, the transaction will not affect any subscribers in the affected market. As such, this transaction will not lead to an increase in market concentration or decrease the number of entities providing service to customers in this market. Meanwhile, Verizon Wireless, Sprint, T-Mobile, and DISH all have substantial spectrum holdings in this market and will continue to provide a competitive constraint post-transaction. The proposed transaction will allow AT&T to become a more effective competitor because it will allow AT&T to deploy a higher quality 4G LTE network in this market than it would be able to deploy in the absence of this transaction (see above). Wireless carriers compete vigorously on the speed and quality of their networks, and the higher speeds and technical efficiencies made possible by this acquisition of spectrum will allow AT&T to be a more effective competitor in the Relevant Area.

This transaction does not pose any threat of competitive harm because it is a *spectrum-only* transaction. In the recent *AT&T/Club 42 Order* the Commission reiterated the factors it considers when assessing the potential for competitive harm. These factors include: (1) the total

number of rival service providers, (2) the number of rival firms that can offer competitive service plans, (3) the coverage by technology of the firms' respective networks, (4) the rival firms' market shares, (5) the combined entity's post-transaction market share and how that share changes as a result of the transaction, (6) the amount of spectrum suitable for the provision telephony/broadband services controlled by the combined entity, and (7) the spectrum holdings of each of the rival service providers.[39] AT&T's mere acquisition of the spectrum at issue, however, will have no impact on the number of rival service providers, the number and nature of available service plans, the coverage of providers' networks, or market shares.

Indeed, the facts of this proceeding amply support a finding, consistent with the *AT&T/Club 42 Order*, that "the likelihood of competitive harm is low."[40] Post-transaction, the four nationwide providers will all have access to low-band spectrum that would allow at least a 5 x 5 MHz LTE deployment on below-1-GHz spectrum, as well as access to spectrum above 1 GHz to combine with their low-band spectrum holdings for LTE deployment.[41] In the *AT&T/Club 42 Order*, the Commission relied on substantially similar facts in finding no significant threat to competition under its "paragraph 187" "enhanced factor" review. Just as it was in the *Club 42* proceeding, it should be clear that it is "unlikely that rivals' costs would be raised to any significant extent, or that expansion or entry would be foreclosed, notwithstanding the fact that AT&T would hold 61 megahertz of below-1-GHz spectrum post-transaction."[42]

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39 *AT&T/Club 42 Order* at ¶ 34.

40 *AT&T/Club 42 Order* at ¶¶ 36-38, 51.

41 *Id.* at ¶ 38. As noted above, the low-band spectrum holdings of Verizon, Sprint, and T-Mobile in this market are identical to those in the area affected by the Club 42 transaction.

42 *Id.* at ¶ 37.

REDACTED

Bates Nos. ATT-QUAL000001 through ATT-QUAL000071 have been redacted in their entirety as Highly Confidential information